

## REMARKS

### Sidewall/tread

In general, the Examiner has failed to produce prior art that teaches the claimed tire surface projections or teachings within the four corners of any cited reference that would instruct one skilled in the art toward modifications necessary to achieve the subject invention. As such, the Examiner's selective and unsubstantiated combination of isolated features from a plurality of disparate, non-analogous art must be considered insufficient under 35 U.S.C. 103 to render the invention unpatentable. As set forth in the claims, the subject projections are specifically recited as including an undercut formed by sides of unequal length forming an apex that protrudes by a height (h) from a radially outer surface from which the first and second sides originate. The problems that the claimed invention is intended to reduce or eliminate are: enhanced self-cleaning; improved optical appearance; improved water repellence that reduces the risk of aquaplaning; and allow for color differentiation. For the Examiner's rejection to be appropriate, the combination of references must teach and show each claimed element and there must be some teaching or suggestion within the references themselves that would instruct one skilled in the art *faced with the problems listed above* (emphasis added) to make the proposed modification and combination of selected elements. Applicants submit the conclusions of the Examiner are not supported by a fair teaching of the references. Moreover, the references do not address the same problems as those addressed by the instant invention and it would not, therefore, be obvious for one skilled in the art to look to the cited art for a solution.

Claims 1-8, 10-16 and 18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kemp (US 6,253,815) in view of Roberts et al (US 4,198,774) and optionally Ohsawa and Lobert et al. This rejection is respectfully traversed for the following reasons. Kemp merely is relevant in showing projections that have various (non-undercut) asymmetric configurations. For the reasons previously presented, Kemp does not show an undercut projection formed by projection sides of differing lengths. Nor can Roberts be deemed to provide such a structure. The projections of Roberts in FIG. 5E are not formed by sides of differing lengths and cannot be construed as forming an apex. The Roberts projections of FIG, 5E, to the contrary, are flat at the top and would provide neither the means for differentiated optical appearance nor the means for improved water aquaplaning reduction. Variations in the Roberts projections could only be effected through height

differentiation and would thereby fail to achieve the advantages of the claimed inventions.

Several of Kemp projections are formed by sides of differing lengths but none can be construed as being undercut in any manner. The unexpected result of the subject invention is to solve simultaneously the need for improved hydroplaning reduction, optical and color differentiation, and a reduction in dirt collection within the channels. None of the cited art can effect such a collective advantage. Furthermore, the Examiner has selectively through hindsight combined contradictory references using the subject invention as a blueprint. Lobert is not directed to either a tread element or a sidewall element. Applicants do not dispute that a sawtooth shape as in Lobert is found in other applications such as in cutting saws. However, one skilled in the art of making tires if confronted with the multiple objectives and problems summarized above would not look to saw art or, as in Lobert, art relating to vehicle drag reduction methods.

None of the references further teach a variable, non-zero angle separating neighboring projections or an undercut projection in a ground contacting tread region of a tire wherein the projection is undercut and formed by sides of differing lengths meeting at an apex. The Examiner has not pointed to any teaching in the references with which to support the selective reconfiguration of references now proposed as obvious.

Independent claims 1, 16, and 17 define the configuration of the claimed projection, namely the second side (2') forming with the outer surface (S1) an undercut extending beneath the apex (P). Such an undercut is not found or suggested in any of the cited references. The undercut defines a channel for the purpose of contained channeling of water between the shorter projection side and the surface from which the projection extends. Such structure patentably defines over the collective cited art which shows projections that form a non-undercut, v-shaped channels, or a projection configuration that lacks the claimed structure that defines a channel formed by the projection undercut.

The Examiner has relied on Kemp as teaching asymmetrically shaped projections and projections that are undercut based upon col. 5 lines 47-53. Kemp in the referenced section specifically teaches away from projections having an undercut in characterizing projections having an undercut as "undesirable". The question, therefore, is would one skilled in the art consider a selective combination of a Kemp tangential reference to a non-preferred, structurally non-specific embodiment characterized as "undesirable" with Roberts, Ohsawa, and Lobert, obvious? Applicants believe that such a selected combination not only would be non-obvious but illogical.

Moreover, the Examiner dismisses the other elements in the pending claims regarding the range of projection heights and angle of the projections as obvious without providing any teaching in Kemp whatsoever to support such a position in regard to a projection having an undercut configuration. Kemp, beyond characterizing projections having an undercut as “undesirable”, is totally silent in the referenced col. 5 lines 47-53 relied on by the Examiner as to what preferred form, shape, dimensions, angles, the non-preferred “undesirable” undercut projections should take. Characterizing specific projection limitations and ranges in the claims as obvious in view of Kemp when Kemp does not teach such limitations and rather teaches an undercut projection to be undesirable is incongruous. Asymmetrical projections in Kemp that are non-undercut provide no basis for concluding what the projection angles and heights would be for an undercut projection.

The Examiner relies on Roberts as teaching an undercut projection in FIG. 5E. In so characterizing the projection in Roberts FIG. 5E as being “undercut”, the Examiner, rather than supporting the position that the subject claimed invention is obvious, instead lends strong credence to the novelty and non-obvious nature of the claimed invention. It is clear that the projection in Roberts FIG. 5E does not meet the limitations of independent claims 1, 16, and 17 (and the claims dependent therefrom). The Roberts projection is not apexed; nor is it formed by two unequal sides. Nor are more than 75% of the projections in Roberts configured such that any plane tangent to the first side of the claimed invention projection cuts the radially outer surface at an acute angle. Roberts’ FIG. 5E projection, referred to by the Examiner as “undercut”, decidedly does not meet this claim limitation. See the attached reproduction of Roberts FIG. 5E and representative planes marked A and B taken through a first side of Roberts’ projection that do not cut an outer surface C at an acute angle. Thus, Roberts fails to teach or suggest a projection that is undercut in the manner claimed by the present invention.

The Examiner nevertheless contends that one skilled in the art would find it obvious to achieve the claimed invention to combine the undercut of Roberts (that does not meet the claim limitations as to an “undercut”) with Kemp which neither shows a projection having an undercut or specifically explains in col. 5 lines 47-53 how such an undercut would be configured. This combination is further deemed to be obvious to one skilled in the art despite the fact that Kemp characterizes any undercut projection as “undesirable”. Combining Roberts with Kemp in the manner proposed by the Examiner would be illogical, not obvious, to one skilled in the art in view of Kemp’s characterization of an undercut projection as being

undesirable. Even if the references were combined, the incorporation of the Roberts projection of FIG. 5E into Kemp would result in a projection that fails to meet the claim limitations for the reason set forth above. In other words, one skilled in the art in combining Roberts with Kemp would logically include an undercut configured pursuant to Roberts since any undercut envisioned by the Kemp reference would be undesirable from a manufacturing standpoint. Stated differently, the Kemp reference teaches one skilled in the art that an undercut made to any of the Kemp projection configurations would be undesirable from a manufacturing standpoint. Therefore, combining Roberts with Kemp would teach one skilled in the art toward the Roberts projection and undercut configuration that, as explained previously, does not teach or suggest the claimed invention. To reiterate, such a combination would not result in a projection in which any plane tangent to the first side of the projection cuts the radially outer surface at an acute angle. Thus, even were the references to be combined (contrary to the Kemp teaching that such a combination would be undesirable), the combination would still fail to teach or suggest at least 75% of the projections undercut in the manner specified in the claims.

In addition, the claims not only specify a projection having an undercut as discussed above, but recite the undercut projection in combination with a specified range of heights and angles. The combination of projection height, angle of inclination and the specification that in at least 75% of the projections, any plane tangent to the first side of the projection cuts the radially outer surface at an acute angle. The combined cited references fail to teach an undercut projection meeting the combined height, angle, and undercut definitions in the claims.

As to claim 2, there is no support from Kemp as to an asymmetric projection having an undercut as defined in the claims in which the sides define an angle within the prescribed range. Claim is, accordingly, considered patentably distinct.

As to claim 3, the incorporation of a curved apex into a projection having an undercut configuration as set forth in claim 1 is considered patentable for the reasons set forth above. Neither Kemp, nor Roberts, nor their combination teaches an undercut as defined by the claims.

As to claim 4, Applicants submit that there is no specification in Kemp that the plane cutting a radially outer surface at an acute angle is tangent to the first side of the projection at a height not exceeding 75% of the total height of the projection. No such specification is found in Kemp as applied to any Kemp projection.

The rejection of claim 5 is traversed for there is no teaching in Kemp to support at least two neighboring projections oriented laterally such that their longitudinal central axes projected on an outer surface form an angle within the claimed range. Figs. 6 and 7 referred to by the Examiner show radially oriented rows of Kemp projections that have longitudinal axes that diverge. Claim 5 refers to at least two of the plurality of projections that are oriented laterally to define a different angle with respect to the outer surface. See FIG. 7. The laterally oriented neighboring projections have longitudinal axes that remain parallel but which are oriented within the designated range of angles with respect to the non-oriented projections. Neighboring Kemp projections in FIGS. 6 and 7 have non-parallel longitudinal center axes. Thus, the rejection of claim 5 is considered unsupported by the Kemp reference.

Claim 6 recites a specific spacing between projections that is not recited or suggested by Kemp. The Examiner has not pointed to any teaching in Kemp placing projections at a minimum spacing of 0 to 100 micrometers. The rejection is accordingly traversed.

Claim 7 recites sides of the projection as being curved. Kemp col. 4, lines 55-63, teach that the Kemp projections may not have a perfect triangular cross-section but there is no teaching or suggestion in such a statement for projection sides that are curved. The Examiner is reconstructing the Kemp reference through hindsight and there is no disclosure in Kemp that would instruct one skilled in the art to make projections having sides that are curved as set forth in claim 7.

Claim 8 specifies an angle varying within the same rubber component and refers to projections having undercut portions recited in claim 1. As Kemp is lacking in any teaching that discloses a projection having an undercut as defined in claim 1, the combination of varying projection angles in combination with at least 75% of the projections having undercuts as defined is considered new and non-obvious.

As to claims 14 and 15, the combination of at least 75% of the projections having undercuts as defined in claim 1 positioned at the sidewall (claim 14) and comprising the lettering (claim 15) is considered patentable over the prior art for the reasons above.

As previously stated by Applicants, and as previously conceded by the Examiner in the Office Action dated September 21, 2004, Ohsawa, fails to recite using undercut projections in a tire. Such a deficiency in Ohsawa, a reference in which projections of other geometries are recited, is strong evidence of the non-obvious nature of the claimed invention. Clearly Ohsawa teaches asymmetric grooves and projections, a fact that Applicants do not dispute. To this extent, Ohsawa and Kemp (US 6,253,815) are cumulative as both show

asymmetric grooves and channels. Both references, however, clearly do not teach undercut projections in a tire and are, therefore, supportive of the novelty of the claimed invention. As to the Examiner's reliance on the height of Ohsawa's projections, there is no teaching on the dimensioning of undercut projections accordingly. The Examiner is compiling a numerically extensive series of prior art references that individually fail to teach the claimed invention or direct one skilled in the art to combine the references in a manner directed toward the invention. Extracting isolated features from Ohsawa and other cited art in the manner set forth is hindsight that lays an improper basis for the rejection of the claims.

Likewise, the addition of Lobert et al. does not cure the deficiency in the compiled prior art. Lobert is related to a device for *reducing* (emphasis added) the frictional drag of moving bodies such as vehicles. Lobert is not even directed to problems confronted by a tire nor the problems solved by the present invention. The use of a saw tooth shape in other, non-analogous art fields for unrelated purposes is not disputed. However, such art is unrelated and lacks instructive value as to whether and how an undercut *as recited in the claims* may be useful and incorporated into a tire. The subject invention utilizes specific undercut projections for the purpose of directing water away from the ground contacting surfaces of a tire for the purpose of eliminating hydroplaning; i.e., enhancing the frictional relationship between the outer surface of the tire and the ground. Clearly Lobert is not intended for such a purpose. In addition, the invention teaches projections that are angled to an apex at variable angles to achieve color differentiation and optical performance. Clearly Lobert does not address such end purposes. Lobert's sole objective is to reduce or eliminate friction between the surface of a vehicle and fluid, i.e., drag. The purpose of the invention, to the contrary, is to enhance friction between the tire and the ground through the channeling of water below the undercut projections. One skilled in the art would not be motivated toward prior art such as Lobert that is intended merely to eliminate drag between the surface of a vehicle and surrounding fluid. Furthermore, Lobert is distinctly not relevant or instructive in the ancillary purposes of promoting a self-cleaning tire surface having enhanced optical performance for visual and color differentiation.

The unexpected results achieved by the present claimed invention is the use of undercut projections that not only provide a well-defined channel to move water away from tire surfaces prone to hydroplaning, but also for accomplishing the ancillary purposes of providing for enhanced optical and color capability through variations in the angle of such projections and/or the angle between neighboring projections. Neither Ohsawa nor Lobert

addresses such end objectives. Their combination would hardly be obvious to one skilled in the art whose objective is to achieve end purposes not appreciated or achieved by either reference.

As to claim 18, the claim is considered patentable for the reasons advanced above in regard to claim 16 from which it depends.

As Kemp in view of Roberts et al and optionally Ohsawa and Lobert et al. fails to establish *prima facie* obviousness of the invention as recited in claims 1-8, 10-16 and 18, it is respectfully requested that the rejection be withdrawn.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kemp (US 6,253,815) in view of Roberts et al and optionally Ohsawa and Lobert et al as applied above and further in view of Attinello et al (US 5,645,660). This rejection is respectfully traversed for the reasons set forth above in regard to claim 1 from which claim 9 depends. In addition, the Examiner has again pointed to no instruction from any of the five cited references that would direct one skilled in the art to combine the references in the manner that the Examiner has concluded to be obvious. Applicants submit that the combination is improper hindsight and claim 9 is patentable therefor. Attinello teaches projections of variable height but, significantly, no where teaches the incorporation of an undercut in any of its projections. Such an omission is evidence of the non-obvious nature of the claimed invention. The disclosed lettering pattern of Attinello therefor lacks the utility and cannot satisfy the multiple objectives of the invention to provide channels for liquid discharge, dirt removal, as well as effective visual display.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kemp (US 6,253,815) in view of Roberts et al and optionally Ohsawa and Lobert et al as applied above and further in view of Baker (US 5,603,796). This rejection is traversed for the following reasons set forth previously, namely none of the art including Baker teaches providing a tape configured as set forth in claim 17. The primary reference Kemp nowhere teaches a means for introducing asymmetric projections to a tire by providing a tape having asymmetric projections protruding therefrom. Nor does Baker. The Examiner is solely relying on hindsight using the subject disclosure as blueprint. No support in the references themselves is available the selective combination proposed by the Examiner.

#### Tread

Claims 1-13 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Ohsawa (US2001/0032691) in view of Lobert et al. (US 4,750,693) and Japan '135 (JP 111-59125). This rejection is traversed for the reasons set forth previously as to Ohsawa and Lobert. The Examiner concedes that the primary reference, Ohsawa, fails to recite using undercut projections in a tire. Such a deficiency in Ohsawa, a reference in which projections of other geometries are recited, is strong evidence of the non-obvious nature of the claimed invention. Clearly Ohsawa teaches asymmetric grooves and projections, a fact that Applicants do not dispute. To this extent, Ohsawa and Kemp (US 6,253,815) are cumulative as both show asymmetric grooves and channels. Both references, however, clearly do not teach undercut projections in a tire and are, therefore, supportive of the novelty of the claimed invention.

The Examiner's rejection founded on Ohsawa pitch angles is further traversed. There is no teaching in Ohsawa for configuring the angle of projection to lie within the claimed range of angles (claim 1) *and within* the range of heights specified (claim 1). The claimed invention is to a combination of elements as set forth in each claim. To the extent that Ohsawa does not teach or suggest such a combination, it teaches away from the invention.

The Examiner's summary conclusion that it would be obvious to make the Ohsawa projections in the configuration of an undercut is entirely unsubstantiated hindsight for there is not instruction as to such a reconfiguration within the reference itself. The addition of Lobert et al. does not cure the deficiency in Ohsawa. Lobert is related to a device for *reducing* (emphasis added) the frictional drag of moving bodies such as vehicles. Lobert is not even directed to problems confronted by a tire nor the problems solved by the present invention. The use of undercuts in other art fields for unrelated purposes is not disputed. However, such art is unrelated and un-instructive as to whether and how an undercut may be used and configured for tire applications. The subject invention utilizes undercut projections for the purpose of directing water away from the ground contacting surfaces of a tire for the purpose of eliminating hydroplaning; i.e., enhancing the frictional relationship between the outer surface of the tire and the ground. Clearly Lobert is not intended for such a purpose. The Examiner has not provided any basis for the position that one skilled in the art would look to Lobert for the configuration of tire projections that have purposes including visual display, dirt evacuation, and hydroplaning minimization. Selecting an isolated configuration in Lobert for an application for which it is not intended is not obvious.

Likewise, Japan '135 is considered cumulative to the Roberts reference discussed previously in that FIG. 3 thereof shows a non-apexed projection that does not and cannot have



an undercut extending below an apex formed by sides of differing lengths as required by the claims. Nor does the Japan '135 undercut meet the limitations in the claims that in at least 75% of the projections any plane tangent to a first side of the projection cuts the radially outer surface at an acute angle. Clearly a perpendicular plane through a first side of the projection shown in FIG. 3 of Japan '135 can be formed that will not cut the outer surface at all. Stated differently, the angle of the projections in FIG. 3 appear not to lie within the range of angles that are specified in claims 1, 16, and 17.

In addition, the invention teaches projections that are angled to an apex at variable angles to achieve color differentiation and optical performance. Clearly Lobert does not address such end purposes. Lobert's sole objective is to reduce or eliminate friction between the surface of a vehicle and fluid, i.e., drag. The purpose of the invention, to the contrary, is to enhance friction between the tire and the ground through the channeling of water below the undercut projections. One skilled in the art would not be motivated toward prior art such as Lobert that is intended merely to eliminate drag between the surface of a vehicle and surrounding fluid. Furthermore, Lobert is distinctly not relevant or instructive in the ancillary purposes of promoting a self-cleaning tire surface having enhanced optical performance for visual and color differentiation. Applicants' position is that one skilled in the art of tire construction and facing the multiple stated objectives would not find it obvious to seek out prior art such as Lobert that is unrelated to the application and objectives of the invention.

The unexpected results achieved by the present claimed invention is the use of undercut projections that not only provide a well-defined channel to move water away from tire surfaces prone to hydroplaning, but also for accomplishing the ancillary purposes of providing for enhanced optical and color capability through variations in the angle of such projections and/or the angle between neighboring projections. Neither Ohsawa nor Lobert addresses such end objectives. Their combination would hardly be obvious to one skilled in the art whose objective is to achieve end purposes not appreciated or achieved by either reference.

As to claims 2-13 and 15,16, the rejection is traversed for the same reasons set forth above as to the deficiencies in each of the cited art. The mold used to create the undercut projections cannot be considered obvious in view of a combination of references (Ohsawa and Lobert) that individually or collectively fail to appreciate and solve the problems toward which the present invention is directed. In addition, with regard to claim 5, the Examiner has rejected the claim based on a 0 degree relationship between projections of Ohsawa. For the

reasons above, the Examiner is not understanding that the angle in claim 5 refers to the angle as shown in FIG. 7. The angled projections have longitudinal axis that remain parallel while Ohsawa teaches radial projections in which the longitudinal axis of neighboring projection rows are not parallel. Applicants traverse the reliance of the Examiner on Ohsawa as showing a variance in neighboring projection angles. Ohsawa's suggestion to vary the angle theta in Figure 15 does not relate to the angle between the longitudinal axis of neighboring projections; rather the longitudinal axis of Ohsawa is always parallel. It is the angle formed between sides of the Ohsawa projections that is taught to be variable, not the angle between longitudinal axis of neighboring projections. See FIG. 7 of the subject specification.

The Examiner's remarks are noted beginning on Page 8 of the Office Action. However, Applicants traverse the substance of the remarks for the following reasons. The cited MPEP sections do not abrogate the well-established principle that unrelated non-analogous art that one skilled in the art would not know to look toward cannot be obvious to combine. *Bott v. Four Start Corp.*, 218 USPQ 358 (D.Ct, ED Mich 1983)(citing *Stevenson v. ITC*, 204 USPQ 276, 280 (CCPA 179)), "to be relevant, the area or art should be 'where one of ordinary skill in the art would be aware that similar problems exist.'" Moreover, one "cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *Ecolchem, Inc. v. Southern California Edison Co.*, 227 F.3d 1361, 1371, 56 USPQ2d 1065 (Fed. Cir. 2000)(quoting *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988)). Here, there are multiple objectives that the invention is intended to address. The Examiner has selectively applied features from disparate references in a manner that the Examiner contends would be obvious to one skilled in the art. However, there is no support for this conclusion when the references are unrelated to tires (as in Lobert) and are intended to address dissimilar problems such as drag reduction (Lobert). Such facts are certainly relevant as to whether one skilled in the art of constructing a tire (as claimed) would look to the reference the Examiner is using as one of many to support a conclusion that the combination is obvious. Applicants submit that one skilled in the art would not find it obvious to combine Kemp with Lobert given the references are directed to entirely different problems and especially because Kemp characterizes projections incorporating an undercut as undesirable. The Examiner has not explained what would motivate one skilled in the art to combine a reference pertaining to projections having an undercut with Kemp when Kemp directly teaches such a feature to be undesirable.

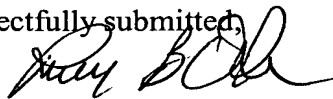
The Examiner relies on *In re Fulton* 73 USPQ2d 1141, 1145 (CAFC 2004). It must be

noted that Kemp does not characterize a projection having an undercut as less preferred, or less desirable, but rather as "undesirable". The issue is not whether it would be possible to modify the Kemp projections in the manner claimed in the subject application, but would one skilled in the art find it obvious to seek out a feature which Kemp claims would be "undesirable" from prior art not related to tire construction (Lobert). Applicants believe it would not only not be obvious but would be illogical. It is again emphasized that col. 5, lines 47-53 of Kemp that the Examiner is relying upon, beyond characterizing any undercut as undesirable, is totally silent as to what form the undercut would take. The Examiner has combined Roberts with Kemp and contends a combination of the references would result in an undercut projection as claimed. Applicants have explained above why the projections of Roberts do not meet the definition of an undercut in the claims. No teaching exists in Roberts as to how or why its projections can or should be modified.

The Examiner's comments regarding Applicants' stated objectives of the invention are noted. However, Applicants' argument is that the multiple objectives of the invention are as stated in the application. The Examiner has combined selective elements from numerous references without pointing at any teaching therein that would direct or instruct one skilled in the art. The Lobert reference is not even directed to tire construction or to any of the stated objectives of the invention. Applicants' position is that selective picking of elements from such a plethora of references to the exclusion of other elements could only be possible through the use of improper hindsight, using the subject invention disclosure as blueprint. The Examiner has not provided any other possible way one skilled in the art would know how or why to follow the combination sequence that the Examiner contends is obvious.

In light of the above remarks, all of the claims now pending in the subject patent application are allowable. Thus, the Examiner is respectfully requested to allow all pending claims.

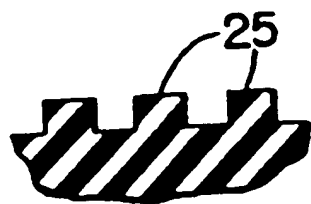
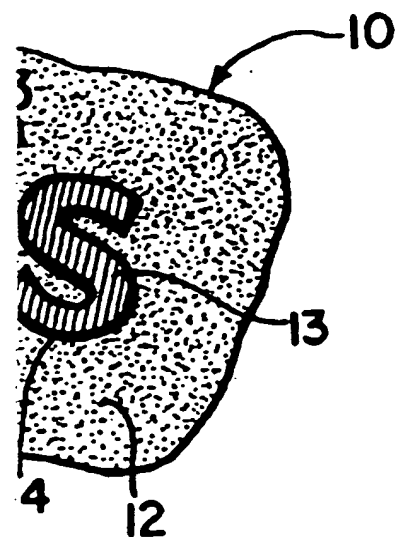
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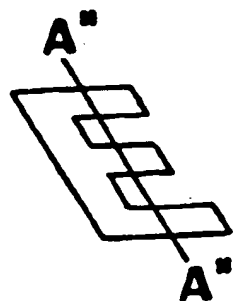
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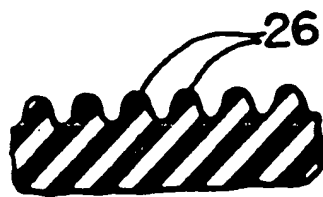
**FIG. 5A**



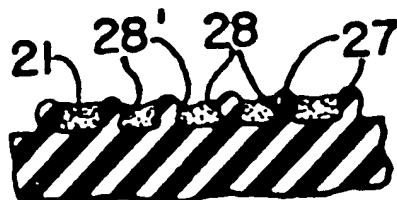
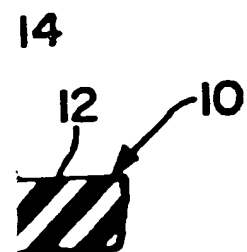
**FIG. 2C**



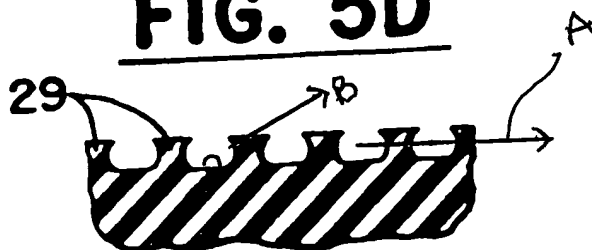
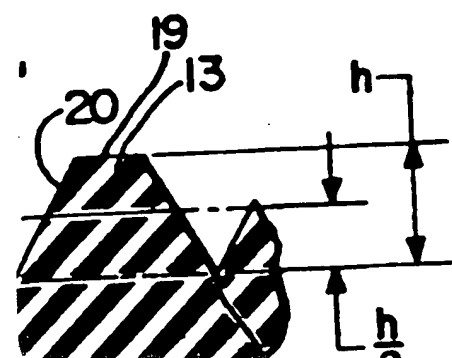
**FIG. 5B**



**FIG. 5C**



**FIG. 5D**



**FIG. 5E**

